<u>REMARKS</u>

Claims 5-7, 10-16, 25-26, and 30-44 will be pending upon entry of the present amendment. Claims 5-7, 10-16, and 25-26 were allowed. Claims 1-4, 8-9, 17-24 and 27-29 were previously canceled. Claims 30-44 are new.

<u>Claims 5-7, 10-16, 25-26</u>

Claims 5-7, 10-16, and 25-26 were allowed in the Notice of Allowance dated September 23, 2009. These claims have not been amended, and are thus still in allowable form.

<u>New Claims 30-33</u>

Although the language of new independent claim 30 is not identical to that of allowed independent claim 25, it will be apparent that claim 30 is allowable for similar reasons.

Although the language of new independent claim 32 is not identical to that of allowed independent claim 26, it will be apparent that claim 32 is allowable for similar reasons.

New dependent claims 31 and 33 depend respectively from independent claims 30 and 32, and are thus allowable at least based on their dependency from allowable base claims.

<u>New Claims 34-44</u>

Each of the new claims 34-44 recites features and/or functionality that are not taught or suggested by the prior art, and are thus also allowable. In the Final Office Action dated June 9, 2009, the Examiner rejected many of the then pending claims as obvious over a combination of Lee ("Target Bit Matching for MPEG-2 Video Rate," IEEE), Oikawa (U.S. Pat. No. 5,677,734), and Pullen (U.S. Pat. No. 5,923,376), alone or in further combination with Wu (6,947,378). However, as discussed below, each of the

new claims includes features and/or functionality not taught or suggested by any of these references.

For example, independent method claim 34 recites, in part (emphasis added):

> determining a relationship between first metric values and respective quantities of encoded video data, the first metric values generated by encoding reference video data from a reference video using a metric function and respective first encoding parameters;
>
> after determining the relationship, . . .
>
> > receiving an input video distinct from the reference video;
> >
> > generating second metric values from input video data of the input video using respective second encoding parameters;
> >
> > selecting at least one of the second encoding parameters based on a desired quantity of encoded video data and the relationship between the first metric values and the respective quantities of encoded video data; and
> >
> > encoding the input video data using the selected at least one encoding parameter.

Thus, independent claim 34 generally includes, among other things, determining a relationship between first metric values and respective quantities of encoded video data based on a reference video. This determined relationship is later used as part of selecting an encoding parameter for encoding video data of an input video, where the input video is distinct from the reference video.

Conversely, Lee describes a bit rate control algorithm that determines quantization parameters for a current macroblock based on a previous macroblock of the same video that is being encoded. Lee emphasizes this point repeatedly: "The proposed algorithm uses the relationship between the number of actual coding bits and the number of estimated bits of the previous macroblock"; (*Id.* at Abstract, p. 66) "When we estimate the number of coding bits for the current macroblock, we consider both the activity and the coding mode of the previous macroblock"; (*Id. at* Section 5, p. 69) "We

can exploit the relationship between the number of actual coding bits, $BIT_{actual}$, and the number of estimated coding bits, $BIT_{estimated}$, of the previous macroblock"; (*Id. at* Section 3.3, p. 67) and "For a more accurate estimation of coding bits for the current macroblock, we examine the number of actual coding bits and the number of estimated bits for the previously encoded macroblocks . . . ." (*Id. at* p. 68). In other words, Lee uses previously encoded macroblocks of the same video as part of its encoding algorithm, and does <u>not</u> teach or suggest using any other video apart from the video that is being encoded.

Accordingly, for at least this reason, Lee does not teach or suggest "determining a relationship between first metric values and respective quantities of encoded video data" based on a reference video and using such a determined relationship as part of "selecting . . . encoding parameters" for encoding an input video that is distinct from the reference video. Lee simply does not teach or suggest using two distinct videos as part of its bit rate control algorithm.

None of the other references appears to teach or suggest features that are missing from Lee. In particular, Oikawa generally describes a method of modifying the quantization step of each macroblock of a video segment using a first quantization step decision circuit and a second quantization step decision circuit to modify the quantization number for each macroblock so that the quantity of quantized data is below a bit budget, but does not include anything related to "determining a relationship between first metric values and respective quantities of encoded video data" based on a reference video and using such a determined relationship as part of "selecting . . . encoding parameters" for encoding an input video that is distinct from the reference video. Furthermore, neither the compression method of Pullen, nor the dynamic allocation of network resources of Wu appears to teach or suggest such features recited by claim 34.

Thus, for at least these reasons, Applicants respectfully submit that new independent claim 34 is allowable over the previously relied-upon references.

New dependent claims 35-41 depend directly or indirectly from independent claim 34, and are thus allowable on the basis of this dependency. In addition, the dependent claims recite additional features and/or functionality not found in the prior art, and are thus also allowable for these additional features and functionality. For example, dependent claim 35 recites, in part, "storing the relationship for use in the selecting at least one of the second encoding parameters based on the desired quantity of encoded video data and the relationship"; and dependent claim 36 recites that "the determining the relationship between first metric values and respective quantities of encoded video data is performed as part of a calibration process." Other dependent claims include features and/or functionality not found in the prior art, although such are not enumerated here for the sake of brevity.

New independent claim 42 recites in part,

a memory configured to store <u>a predetermined relationship</u> <u>between first metric values and respective quantities of encoded video</u> <u>data</u>, the predetermined relationship being determined during a calibration process and <u>based at least in part on generating the first metric values</u> <u>from reference video data of a reference video</u> using a metric function and respective first encoding parameters, and generating the respective quantities by encoding the reference video data using the respective first encoding parameters;

a predictor module configured to <u>receive input video data</u> from an input video, the input video <u>distinct from the reference video</u>, and to <u>generate second metric values from the input video data</u> using the metric function and respective second encoding parameters;

a selector module configured to <u>select at least one of the second</u> <u>encoding parameters based on</u> a desired quantity of encoded video data and <u>the stored predetermined relationship</u> . . . .

Although the language of new independent claim 42 is not identical to that of new independent claim 34, claim 42 has language similar to claim 34 and thus is allowable for at least similar reasons to those set forth above with respect to claim 34.

New dependent claims 43-44 depend from independent claim 42, and are thus allowable on the basis of this dependency. In addition, the dependent claims recite

additional features and/or functionality not found in the prior art, although such are not enumerated here for the sake of brevity.

Conclusion

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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